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(54) **SECURED STRAND END DEVICES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

619,403 A	2/1899	Grant et al.
1,945,195 A	1/1934	Kellems

(Continued)

FOREIGN PATENT DOCUMENTS

AU	10748/99	8/1999
CA	2083157	11/1991

(Continued)

OTHER PUBLICATIONS

Office Action issued in Japanese Application No. 2009-534803, dated Apr. 19, 2012.

(Continued)

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(57) **ABSTRACT**

A woven, self-expanding stent device has one or more strands and is configured for insertion into an anatomical structure. The device includes a coupling structure secured to two different strand end portions that are substantially aligned with each other. The two different strand end portions include nickel and titanium. The coupling structure is not a strand of the device.

21 Claims, 11 Drawing Sheets